HW 4 Polynomial Operations

I will be able to add, subtract, multiply, and divide polynomials.

Key

Name Per

1 2 3 other number

Part 1: Classify each as **M** (monomial), **B** (binomial), **T** (trinomial), **P** (polynomial), or **C** (constant).

1). B $2x+1$ 2). B $17x^2+11$ 3). P $8x^3+2x^2+3x-7$

4). C -130 5). T $4a^2+7a-10$ 6). T $10x^3-2x+1$

Part 2: Standard Form of Polynomials

7.) Circle the problems that are in **standard form**. If it is not in standard form, re-write in standard form.

a. x^3-11x^2 b. $2+3x+4x^2+3x^3$ c. $-3x+17x^4+2x^2$ d. $-1+3x+2x^2$

$3x^3+4x^2+3x+2$ $17x^4+2x^2-3x$ $2x^2+3x-1$

8. Given: $2x^3-5x^2-2x+12$

How many terms are there? 4

What is the coefficient of the 3rd term? -2

What is the constant? 12

Part 3: Add these polynomials. Only combine things that are alike (have the same exponent).

9.) $14x+5$
$+10x+5$
$24x+10$

10.) $10x+12$
$+6x+20$
$16x+32$

11.) $17x^2+11$
$+8x^2+11$
$25x^2+22$

12.) $(19x^2+12x+12)+(7x^2+10x+13)$
$7x^2+10x+13$
$26x^2+22x+25$

13.) $(4x^2-6x+7)+(-19x^2-15x-18)$
$-19x^2-15x-18$
$-15x^2-21x-11$

14.) $(20x^2+15x+13)+(-19x^2+17x+5)$
$-19x^2+17x+5$
$x^2+32x+18$

15.) $(9x^6-4x^5)+(10x^5-15x^4+14)$
$+10x^5 \quad -15x^4 \quad +14$
$9x^6+6x^5-15x^4+14$

16.) $(9x^2+12)+(7x^2+10x+13)$
$9x^2 \quad +12$
$7x^2+10x+13$
$16x^2+10x+25$

17.) $(5x^6+9x^3-6x)+(-9x^6-20x^2-6x)$
$5x^6 + \quad 9x^3 \quad -6x$
$-9x^6 \quad -20x^2-6x$
$-4x^6+9x^3-20x^2-12x$

Part 4: Subtract these polynomials.

18.) $(6x + 14) + (-9x - 5)$

$-3x + 9$

19.) $(14x^2 + 13x + 12) + (-7x^2 - 20x - 4)$

$7x^2 - 7x + 8$

20.) $(19x^2 + 9x + 16) + (-5x^2 - 12x - 7)$

$14x^2 - 3x + 9$

21.) $(17x^2 + 7x - 14) + (+6x^2 + 5x + 18)$

$6x^2 + 5x + 18$

$23x^2 + 12x + 4$

22.) $(-18x^2 + 4x - 16) + (-15x^2 - 4x + 13)$

$-15x^2 - 4x + 13$

$-33x^2 + (-3)$

Part 5: Multiplying Monomials

23.) $2x(4x^2)$

$8x^3$

24.) $17x^2(2x^5)$

$34x^7$

25.) $-3x^3(4x^2)$

$-12x^5$

26.) $-12x^2(-2x)$

$24x^3$

Part 6: Use the distributive property (rainbow) to find the product (multiply).

27.) $4(x+2)$

$4x + 8$

28.) $-3(2x^2+1)$

$-6x^2 - 3$

29.) $6(x^2+2x+7)$

$6x^2 + 12x + 42$

30.) $4x(1-x)$

$4x - 4x^2$

$-4x^2 + 4x$

30.) $-x^2(x+5)$

$-x^3 - 5x^2$

31.) $3x^2(4x^3 - 5x + 10)$

$12x^5 - 15x^3 + 30x^2$

32.) $3x(-x^2 + 2x - 12)$

$-3x^3 + 6x^2 - 36x$

Part 7: Use division and the distributive property to simplify. Divide EVERY term.

33.) $\frac{-15x+10}{5}$

$-3x + 2$

34.) $\frac{6x^2+10}{2}$

$3x^2 + 5$

35.) $\frac{-18x^2+21x}{-3}$

$6x^2 - 7x$

36.) $\frac{14x^3+28x^2-70}{7}$

$2x^3 + 4x^2 - 10$

37.) $\frac{20x^4+15x^2}{5x^2}$

$4x^2 + 3$

38.) $\frac{x^4+3x^3+7x}{x}$

$x^3 + 3x^2 + 7$